

[Subscribe to Mother Earth News only \\$1.67 an Issue](#)

[Magazine](#) | [Library](#) | [Tips](#) | [Forums](#) | [Shopping](#)



MOTHER EARTH NEWS

The Original Guide to Living Wisely

Give Green, Save Green

Gift subscriptions
only **\$10**



Subscribe | Renew | Shopping | Article Archive | Contact Us | Home



Subscribe Today



Only \$10 a year

[Home](#) | [Homesteading & Self-Reliance](#) | [RSS feeds](#) | [Comments](#) | [E-mail](#) | [Print](#)

Quickly bookmark COAST TO COAST ON HOMEMADE FUEL at



January/February 1982

COAST TO COAST ON HOMEMADE FUEL

The Future Fuels Challenge Rally proved, among other things, that it is possible to transverse the continent on homemade fuel, including other applications and what we learned.

The Future Fuels Challenge Rally proved (among other things) that it's possible to travel

Regular readers of this publication—and subscribers to MOTHER's *Experimental Vehicle Newsletter*—are no doubt aware that members of MOM's research crew spent a great deal of time and effort preparing both our woodburning truck and our ethanol-powered van for the Los Angeles-New York City "Future Fuels Rally" sponsored by Shepard Electronics, Inc. of Rochester, New York. (See MOTHER NO. 72, page 192, for more details.)

Well, the big event was held during the week of October 17-24 . . . and though there were—as could have been predicted in an undertaking of this magnitude—a few disappointments along the way, 20 vehicles rolled into the Big Apple powered by just about everything but petroleum!

EARLY DISAPPOINTMENTS TURN TO DETERMINATION

As with any competitive affair preceded by ballyhoo and huzzahs, there were a lot more people who *talked* about participating



[Image Gallery](#)

RELATED

Tools:

[Image Gallery](#)

[E-mail this article](#)

[Print this article](#)

[Share Comments](#)

[RSS feeds](#)

Articles:

[RUN YOUR DIESEL ON SOYBEAN OIL](#)

[Mother's Anaerobic-powered Automobile](#)

More [Homesteading & Self-Reliance](#) from [Mother Earth News](#)

Tips:

[Mother Offers Santa a Tip for 2008](#)

[How to Choose a Generator to Provide Emergency Power](#)

More [Homesteading & Self-Reliance](#) from [Mother Earth Living](#)



Earth Moment
Carbon Neutral Shopping

Ads by Google

[Hydrogen Fuel Generator](#)

Low Cost Hydrogen Fuel Generator
Pure Hydrogen Fuel Generator
[Hintstar.com](#)

[Hydrogen Fuel Cells](#)

For Industry, Commercial, or Home Premier Power Generation Systems
[www.silverwoodenergy.co](#)

[Alternative Fuel Vehicle](#)

Is It Possible to Run My Car on Water? Mileage Gain 48.5%
[www.Water4Gas.com](#)

[Ethanol Fuel](#)

Save Time Searching. We Have The Top 5 Sites On Fuel Alternatives.
[www.FuelAlternative-s.co](#)

Customer Service

[Subscribe](#)

[Renew](#)

[Contact Us](#)

Shopping

[Books & Plans](#)

[Archive CDs](#)

[Organic Coffee](#)

[Organic Tea](#)

[Organic Cocoa](#)

[Earth Flags & More](#)

[Best Sellers](#)

Newsletters

RSS Newsfeeds

Rancho Cappuccino

Mother Earth Tips

Today's Most Read Articles

Article Archive

[Alternative Energy](#)

[Do It Yourself](#)

[Green Building](#)

[Green Transportation](#)

[Homesteading & Self-Reliance](#)

[Livestock & Farming](#)

[Natural Health](#)

[Nature & Environment](#)

- [Organic Gardening](#)
- [Whole Foods & Cooking](#)
- Community Forums**
- Special Projects**
- Directories**
- [Carpenters](#)
- [Poultry Hatcheries](#)
- [Soil Testing Labs](#)
- [Green/Natural Building](#)
- Event Calendar**
- Classified Ads**
- Writers' Guidelines**
- Company Links**
- CustomerCare**
- [Subscribe](#)
- [Renew Online](#)
- [Contact Us](#)
- Home**
- Sitemap**

than there were folks who actually paid their entrance fees. But when the green flag dropped, 38 entrants pointed their vehicles east and bade farewell to the City of Angels . . . en route, through nearly two dozen checkpoints, to New York City (via Phoenix, Arizona . . . Albuquerque, New Mexico . . . Denver, Colorado . . . Omaha, Nebraska . . . Chicago, Illinois . . . Cleveland, Ohio . . . and Rochester, New York).

Unfortunately, a number of occurrences marred what could have been a fairly smoothly run event. To begin with, the size of the purse (at one point said to total \$300,000) was held in question just days before the rally . . . putting a burden on many people who'd made financial sacrifices in the hopes of recouping their expenditures in the end. Then, in Los Angeles, it was indicated that the procedure by which the various wood fuels' BTU values were to be measured (there were four wood-powered entries) would be changed . . . a decision that, many felt, worked to the disadvantage of the *liquid* -fueled vehicles, whose rates of consumption were being measured very accurately. To make matters worse, a tragic accident just outside Phoenix left rally coordinator David Carmichael badly injured . . . and very nearly shattered the contestants' hopes of continuing the rally according to plan.

Despite the setbacks, however, the show *did* go on. An impromptu "yea or nay" conference, held in Albuquerque by the drivers left in the group, settled any doubts as to the future of the race: "We're going to New York, rally or not!"

[1] The California Commuter. [2] A sunflower oil-burning ADM Rabbit. [3] B.V. Alvarez holds the checkered flag signed by all the finishing entrants. [4] The NAFCO entry runs on ethanol "Superfuel". [5] The visitors' nonpetroleum fuels. [6] The Citroen-powered Trihawk. [7] Pre-race preparation. [8] ECON's wood-fueled entry. [9] MOTHER's truck makes the Big Time!

[45 Cent Per Gallon Diesel](#)
Save thousands of dollars. Alternative diesel fuel.
[BiofuelBasics.com](#)

[Fuel Tanks & Trailers](#)
Custom Fuel Trailers - Gas/Diesel Large Selection of Fuel Trailers
[www.Discount-Equipment.com](#)

[Ford Fuel Efficiency](#)
Ford Motor Co. wins five J.D. Power Initial Quality Model Awards.
[fordvehicles.com](#)

[Burn Water in your Car](#)
No gasoline needed Now available Convert your car to burn water
[tiptopwebsite.com/kickthegas](#)

popular gasoline substitute was ethanol, and many independent

BURNING JUST ABOUT EVERYTHING UNDER THE SUN
With that "East Coast or bust" attitude prevailing, the real reason for the event — demonstrating that alternative fuels have a place in today's energy-scarce worldcame to the fore all the more strongly. Probably the most



entrants along with such corporate giants as the Archer Daniels Midland Company—opted for that made-from-corn combustible to power their vehicles. Methanol, made from both coal and wood, was also a favorite, and was used by "little guys" and large corporations alike . . . including CONOCO/B.F. Goodrich, Ford Motor Company (whose Alternate Fuels Division helped sponsor several automobiles using both types of alcohol fuel), the Denver Research Institute (University of Denver), and the official entry of The 1982 World's Fair.

As we mentioned earlier, there were four wood-powered entries (MOTHER's included), and the coast-to-coast journey provided an excellent opportunity for the biomass burners to compare notes and give their machines a nearly nonstop "do or die" acid test under a variety of climatic conditions. There were also diesel-engined contenders, and the drivers of those vehicles (among them a turbocharged Peugeot-engined Jeep) used various kinds of vegetable oils to power their creations. (Future Fuels Challenger Doug Malewicki—designer of the California Commuter featured in issue 3 of the *Experimental Vehicle Newsletter*—fitted his highly aerodynamic tri-wheeler with a 6.4-horsepower Lombardini diesel engine supplied by MOTHER's researchers, and managed to squeeze an average of 145 miles from each gallon of specially blended fuel. Since Doug's car was an unofficial entry, however, he left the rally at Phoenix, having proved his point.)

WHAT DID WE LEARN?

At the time of this writing, the Future Fuels Rally sponsors have not yet declared an overall winner, pending the calculation of a vehicle-weight-IBTU-consumed ratio for each entry . . . a figure that most contestants agree—given the less-than-perfect conditions under which the event was held—will likely be an educated estimate at best.

At any rate, whether there's one victor or 20, the members of MOM's research crew (B.V. Alvarez, Robyn Bryan, Norman Holland, Don Barrett, and John Vogel) learned some valuable lessons from their experience with the ethanol-fueled van, the woodburning pickup (which, by the way, utilized a dual-fuel carburetor with alcohol as the reserve source of energy), and our ethanol-powered Ford truck, which went along to rack up some more test miles and to serve as a fuel carrier.

Here are the facts: Both alcohol-powered vehicles performed exceptionally well, save for a minor filter problem on the Ford. (It was a blessing in disguise actually, since it forced us to use a different type of filter—a corrugated undersink, paperelement, water-straining cartridge—which, as it turned out, performed better than anything we'd tried previously.) Furthermore, the trip allowed us to chalk up some final observations on the recent camshaft modifications that we'd made to enhance the alcohol-powered vehicles' performance during off-idle and midrange operation.

In a nutshell, the best-behaved cam, measured at 0.010" tappet travel, had the following specifications: Intake valve open at 6° Before Top Dead Center, and closed at 41 ° After Bottom Dead Center . . . exhaust valve open at 57° Before Bottom Dead Center, and closed at 3° BTDC . . . and a lift of 0.425" for both the intake and exhaust valves. (For those who might not wish to purchase a new camshaft with these specifications, Larry Wallace at Holman & Moody—Dept. TMEN, Box 19065, Charlotte, North Carolina 28219—is prepared to regrind stock cams to order.)

As far as our woodburning vehicle was concerned, our lessons were even more rewarding. Besides finding out that wood smoke and ethanol make perfect companion fuels (both are slow-burning, perform best under high compression and with advanced timing, and thus function well in the same engine), we learned that certain kinds of wood—such as the ponderosa pine commonly found on the West Coast—don't compare favorably with our old standbys, scrap yellow pine and oak, because of the western wood's high ash content and low gas quality. In fact, at the start of the trip, the research crew had to fabricate a larger filter to contend with the increased amount of ash created by the inferior fuel . . . but even with these last-minute problems, the 454-cubic-inch Chevy—working at a 12-to-1 compression ratio and capable of traveling at speeds up to 80 MPH—covered upward of 100 miles on each of its 150-pound fuel loads before stopping for a refill.

Later on in the trip, in the cold climates of Denver and Omaha, excessive condensation proved to be another bugaboo, since it shortened the intervals between necessary filter cleanings. We're currently designing a centrifugal extractor that should eliminate this problem.

All in all, we've concluded that our time and effort were well spent . . . if not because we'll reap an outright reward, then at least because we helped to prove that alternative fuels aren't merely a pipe-dreamer's fantasy.

EDITOR'S NOTE: For information on subscribing to MOTHER's Experimental Vehicle Newsletter, see page 161.

All articles in this Archive are reprinted just as they were originally published; the publication date is shown in the URL address at the top of the page. Source listings, addresses and prices have not been updated; some details may have changed and terminology may be outmoded.

In some cases the scanning software used to create the digital articles has introduced typos into the text. In particular, the software often translated fractions incorrectly, i.e. "1/2" now reads as "112". We are working to correct these errors.

[Home](#) | [Homesteading & Self-Reliance](#)

[RSS feeds](#) | [Comments](#) | [E-mail](#) | [Print](#)

Quickly bookmark *COAST TO COAST ON HOMEMADE FUEL* at



Readers' Comments

To post a comment, please scroll to the bottom of the page.

Name*

E-Mail*

Comment*

*Fields are required



Enter the code shown:

Add Comment

Learn more about Homesteading & Self-Reliance

HEAT YOUR HOME FOR FREE E-BOOK



INSTANT DELIVERY ITEM: Order this e-book and it will be delivered directly to your computer - no more waiting for delivery or paying expensive shipping and handling fees.

Heat Your Home for Free is a collection of classic articles exclusively from *MOTHER EARTH NEWS* that shows how

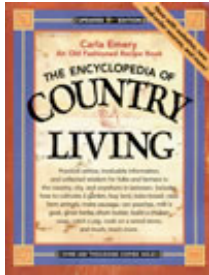


simple solar systems can heat your home, garage, shop, barn, commercial building — just about any structure with a south-facing wall. The heat comes from solar energy, and it's free. Best of all, this e-handbook shows how you can design, build and install solar heating systems yourself! We've compiled our best articles on do-it-yourself solar heating, from the early days of the magazine right up to the present. 47 pages.

Mother Earth News Wiser Living E-Handbooks are packed with practical information, innovative ideas and creative projects right at your fingertips. By supporting digital products like this one you are helping save millions of trees a year. Order your downloadable PDF and start reading today!

\$19.95 | [Buy Now](#)

THE ENCYCLOPEDIA OF COUNTRY LIVING (9th Ed)



Everything you need to know to be self-sufficient, including renewable energy sources. The updated ninth edition of this compendium of food production information is the hefty result of over three decades of intelligence-gathering by Carla Emery, whose initial encyclopedia project was designed to help newbies in the "back to the land" movement of the early '70s learn self-sufficiency.

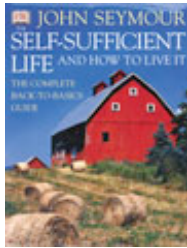
Tasks Emery covers run the gamut from the simple to the complex, and from the common to the strange, and include how to: bake bread, make seed milk, sew a cornhusk bed, dry flowers, prune kiwi vines, culture yogurt, plant beans, keep bees, build a fish pond, artificially inseminate a turkey and help a cow who's eaten nails. In chapters such as "Grasses, Grains & Canes," "Food Preservation" and "Goats, Cows & Home Dairying," Emery offers advice, recipes (including many that are vegan), folk wisdom and plenty of hard facts.

Though it's definitely not aimed at them, urbanites will find the recipes and resource lists (of herb periodicals, nurseries, organizations dedicated to simple living, etc.) useful, the trivia interesting, and Emery's personal reflections compelling. Even readers with no plans to raise sheep, sell homemade cheese or plant millet will find this a fascinating cultural document!

Best Seller! Any backorders expected to ship November 5th.

\$29.95 | [Buy Now](#)

THE SELF-SUFFICIENT LIFE AND HOW TO LIVE IT



Now revised and fully updated, this expanded edition is the key reference to living off the land. Packed with practical information, tried-and-tested tips, Seymour's visionary handbook explains how to reap the harvest, respect the land, stay healthy and waste nothing.

The Self-sufficient Life and How to Live It teaches all the skills needed to live independently in harmony with the land harnessing natural forms of energy, raising crops and keeping livestock, preserving foodstuffs, making beer and wine, basketry, carpentry, weaving, and much more.

This new edition includes 150 new full-color illustrations and a special section in which Seymour, the father of the back-to-basics movement, explains the philosophy of self-sufficiency and its power to transform lives and create communities. More relevant than ever in our high-tech world, *The Self-sufficient Life and How to Live It* is the ultimate practical guide for realists and dreamers alike.

\$30.00 | [Buy Now](#)

SOLARIZE YOUR HOME, E-BOOK



INSTANT DELIVERY ITEM: Order this e-book and it will be delivered directly to your computer - no more waiting for delivery or paying expensive shipping and handling fees.

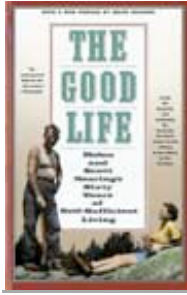
This book presents all sorts of options to utilize solar energy in your home. Learn the basic principles of solar heating, solar hot water and solar electricity. From do-it-yourself to more complex projects, this e-book covers the spectrum of solar energy. Plus a bonus article on solar water distillers!

How does free hot water sound? How about a lower heating bill? Solarize Your Home will help you create a home that is healthier to live in, easier on the environment, more valuable and a delight to come home to.

Mother Earth News e-books are packed with practical information, innovative ideas and creative projects right at your fingertips. By supporting digital products like this one you are helping save millions of trees a year. Order your downloadable PDF and start reading today! *Mother Earth News* e-books are packed with practical information, innovative ideas and creative projects right at your fingertips. By supporting digital products like this one you are helping save millions of trees a year. Order your downloadable PDF and start reading today!

\$19.95 | [Buy Now](#)

THE GOOD LIFE



This new edition of Living the Good Life and Continuing the Good Life brings together the Nearings' classic guides to the theory and practice of rural homesteading.

Best Seller! Any backorders expected to ship November 5th.

\$15.00 | [Buy Now](#)

Read more Homesteading & Self-Reliance Articles:

[RUN YOUR DIESEL ON SOYBEAN OIL](#) - RUN YOUR DIESEL ON SOYABEAN OIL September/October 1979 Michael Brown (the author of Brown's Alcohol Motor Fuel Cookbook) reports on still another renewable fuel possibility. The events of this past summer have provided just about everyone with abundant proof t

[Mother's Anaerobic-powered Automobile](#) - Methane fuel pollutes very little, but it takes much more methane than gasoline to operate a vehicle. We are constructing prototype "methane bugs", ultra-small, ultra-light cars designed to operate on our own homemade methane bio-fuel.

[Back to School with Better Buses](#) - Those familiar yellow school buses may be the safest way to get our children to school, but they also subject children to harmful pollution. Thankfully, there are many emerging means for communities to clean up what carries our most precious cargo.

[The New Diesel: Cleaner and Greener](#) - Long renowned for superior fuel economy, but notorious for foul exhaust, diesel cars have never been widely popular in the United States. But that soon may change as a new generation of "clean" diesel vehicles come down the pike. These won't be the smoke-spewing, smelly, noisy and underpowered engines of the '70s. And by the end of this decade, we'll have diesel cars that meet the same stringent emission standards as those for gasoline vehicles.

[MOTHER'S ALCOHOL ROAD SHOW](#) - MOTHER'S ALCOHOL ROAD SHOW May/June 1980 Here's the latest word on our traveling ethanol fuel seminars. MOTHER'S ALCOHOL ROAD SHOW Last summer, the big news buzzing all around MOTHER's Hendersonville, North Carolina offices was the series of hands-o

[Homesteading & Self-Reliance](#) Tips from Mother Earth Living

[Mother Offers Santa a Tip for 2008](#)

Dear Santa, We've been thinking about global warming a lot, and we're worried about your reindeer.

[How to Choose a Generator to Provide Emergency Power](#)

In the February/March 2008 issue of Mother Earth News, we'll run an article on choosing the right emergency or backup generator to fit your needs. But with so many people recently losing power due to ice storms and other severe winter weather, we've decided to post this article today.

[How to Manage Woods for Fun and Profit](#)

A woodlot, whether three acres or 100 acres, can provide a myriad of things: fun and recreation; a bootstrap business for firewood and lumber; and the sheer satisfaction of having trees nearby. But to get the most out of your woodlot requires some forest management.

[How to Chop Firewood](#)

My grandpa had a glass eye (his right eye). While on a road trip with my grandma, he stopped for gas. Grandma said she was staying in the car, but changed her mind while grandpa pumped the gas. He drove away, chatting for almost 12 miles before he realized grandma was no longer in the car. He finally turned his head far enough to look at the empty passenger's seat.

[Beat the Heat: Fire Prevention Tips](#)

Just because the temperatures are falling outside doesn't mean your home can't get dangerously hot — according to the National Fire Protection Association, December and January are the peak months for home fires. Follow these easy steps to stay safe.

Download our 30 Ways to Slash Energy Bills This Winter!

FREE 30 Ways to Slash Energy Bills This Winter, a gift to you when you sign up for our **FREE** Mother Earth Living e-mail newsletter. Twice a week, we'll send you handy tips that will have you living a greener, more self-reliant life in no time.

You may unsubscribe from the e-newsletter at any time and keep the Guide Free as our way of thanking you for trying out the Mother Earth Living e-newsletter.

We will **NEVER** share your e-mail address with anyone.

Pay Now & Save 66% Off the Cover Price



Save More Money & Trees!

Pay with a credit card now and take advantage of our Earth-Friendly automatic renewal savings plan. You save a total of \$9.95 and get 6 issues of *Mother Earth News* for only **\$10.00** (USA only).

Mother Earth News offers you practical information on cutting energy costs, do-it-yourself home improvements, organic gardening, self-sufficiency, sustainable technologies and much more!

First Name: *

Last Name: *

Address: *

City: *

State/Province: *

Zip/Postal Code: *

Country:

Email: *

(* indicates a required item)

OR choose the "BILL ME" option and we'll bill you \$14.95 for 6 issues of *Mother Earth News*. That's still a \$5 savings off the regular price of \$19.95!

Canadian subs: 1 year, \$15.50 (includes postage & GST).

Foreign subs: 1 year, \$18.00. U.S. funds.

[Canadian Subscribers - Click Here](#)

[Non US and Canadian Subscribers - Click Here](#)



[Home](#) | [Subscribe](#) | [Customer Service](#) | [Advertising](#) | [Site Map](#) | [Contact Us](#) | [Privacy Policy](#) | [RSS](#) | [Where to Find Us](#) | [Syndicated](#)

Copyright 2008, All Rights Reserved | Ogden Publications, Inc., 1503 SW 42nd St., Topeka, Kansas 66609-1265
[Mother Earth News](#) • [Utne](#) • [Natural Home Magazine](#) • [EarthMoment](#) • [Herb Companion](#) • [Herbs for Health](#)
[Grit Magazine](#) • [Copper's Magazine](#) • [Motorcycle Classics Magazine](#)
[Farm Collector](#) • [Gas Engine Magazine](#) • [Steam Traction](#) • [Brave Hearts](#) • [Good Things to Eat](#)
• [Mother Earth Organic Coffee and Tea](#) • [Ogden Publications](#)